Slide: **Representative Automation and Information Management Tools**
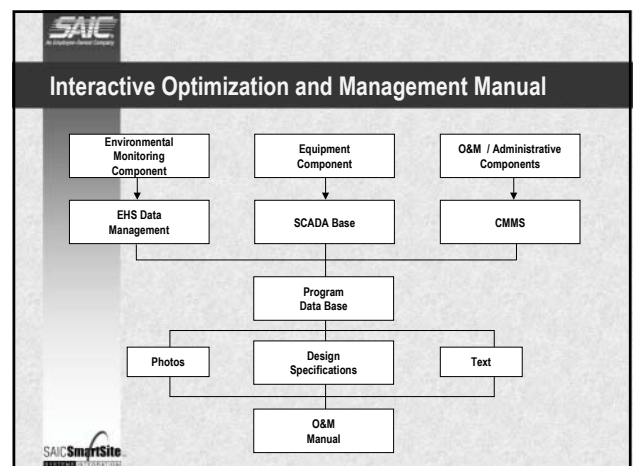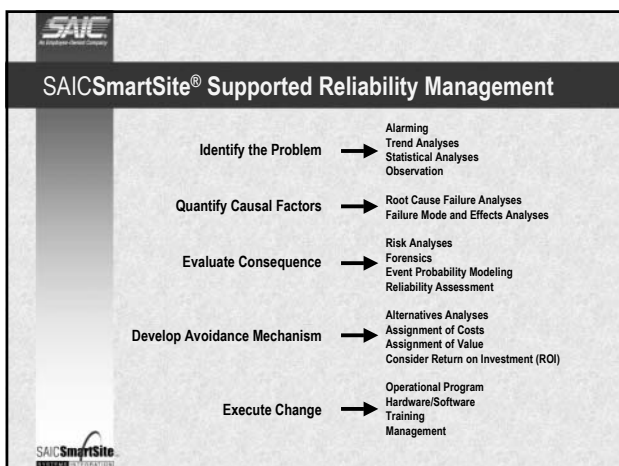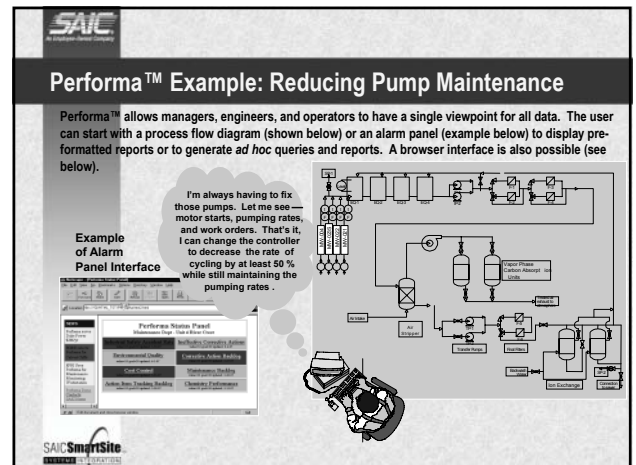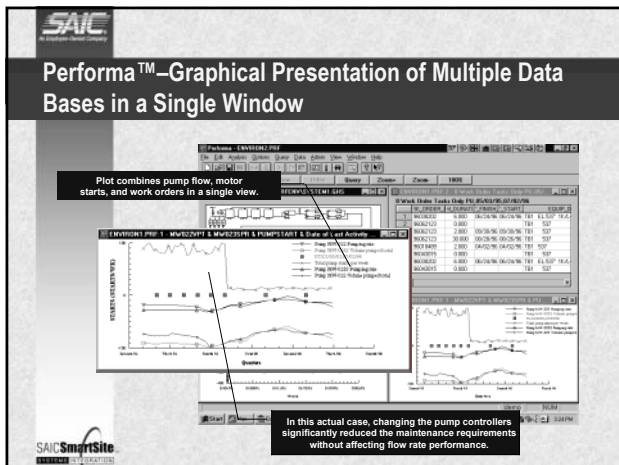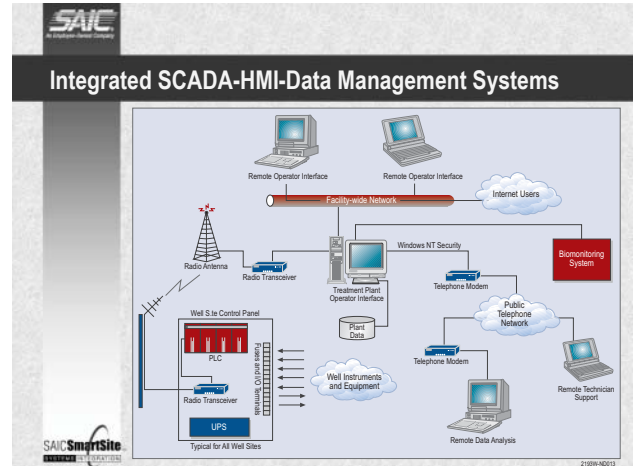
SCADA
- Process Automation
- Remote Control
- Alarming
- System Monitoring

CMMS
- Work Scheduling
- Maintenance Management
- Materials Purchasing
- Other Resource Management

EHS Data Management
- Site Information
- Chemical Data Base
- Waste Management
- Tracking and Reporting

Slide: **Integrated SCADA-HMI-Data Management Systems**

Slide: **Performa™–Graphical Presentation of Multiple Data Bases in a Single Window**

Plot combines pump flow, motor starts, and work orders in a single view.

In this actual case, changing the pump controllers significantly reduced the maintenance requirements without affecting flow rate performance.

Slide: **Performa™ Example: Reducing Pump Maintenance**

Performa™ allows managers, engineers, and operators to have a single viewpoint for all data. The user can start with a process flow diagram (shown below) or an alarm panel (example below) to display pre-formatted reports or to generate ad hoc queries and reports. A browser interface is also possible (see below).

I'm always having to fix those pumps. Let me see — motor starts, pumping rates, and work orders. That's it, I can change the controller to decrease the rate of cycling by at least 50 % while still maintaining the pumping rates.

Example of Alarm Panel Interface

Slide: **SAICSmartSite® Supported Reliability Management**

Identify the Problem →
- Alarming
- Trend Analyses
- Statistical Analyses
- Observation

Quantify Causal Factors →
- Root Cause Failure Analyses
- Failure Mode and Effects Analyses

Evaluate Consequence →
- Risk Analyses
- Forensics
- Event Probability Modeling
- Reliability Assessment

Develop Avoidance Mechanism →
- Alternatives Analyses
- Assignment of Costs
- Assignment of Value
- Consider Return on Investment (ROI)

Execute Change →
- Operational Program
- Hardware/Software
- Training
- Management

Slide: **Interactive Optimization and Management Manual**

Environmental Monitoring Component → EHS Data Management

Equipment Component → SCADA Base

O&M / Administrative Components → CMMS

Program Data Base

Photos | Design Specifications | Text

O&M Manual

SAIC's PLUMECLEANER

PlumeCleaner links with subsurface simulators to auto-design the least cost, risk-based remediation

Summary

- RAO/LTM Optimization Requirements Are Highly Variable and Technology and Site-Specific
- Systematic and Comprehensive Approach Fully Documents Baseline Conditions
- Multidisciplinary Team Provides Quality Evaluation
- Wide Range in Opportunities for Cost-Saving
- A Systems Analyses of Interdependent Problems and Solutions Yields Optimum Cost Savings
- A Systems Engineering Approach Maximizes Total, Long-Term Cost Savings
- Savings Generally Exceed 20%